

## Darwin Plus: Overseas Territories Environment and Climate Fund Final Report

*To be completed with reference to the “Writing a Darwin/IWT Report” Information Note: (<https://dplus.darwininitiative.org.uk/resources/reporting-forms-change-request-forms-and-terms-and-conditions/>). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

### Darwin Project Information

Project reference	DPLUS086
Project title	Future-proofing endangered species conservation in Anguilla
Territory(ies)	Anguilla
Lead organisation	Fauna & Flora International (FFI)
Partner institution (s)	Anguilla National Trust (ANT) Durrell Wildlife Conservation Trust (Durrell) Royal Society for the Protection of Birds (RSPB)
Darwin Plus Grant value	£291,992.00
Start/end date of project	1 April 2019 - 31 March 2022
Project leader name	Mr. Olivier Raynaud
Project website/Twitter/blog etc.	
Report author(s) and date	Mr Olivier Raynaud, Dr Jenny Daltry, Ms Farah Mukhida, Dr Louise Soanes,

## 1 Project Summary

Scientists predict up to 43% of species could disappear due to climate change, with Caribbean islands forecast to be hardest hit<sup>1</sup>. The biodiversity-rich but low-lying archipelago of Anguilla is exceptionally vulnerable, as was demonstrated by the devastating impacts of Hurricanes Irma and Maria in 2017. As many models predict even more severe hurricanes in the Caribbean<sup>2</sup> along with rises in temperature and sea level, multiple extinctions and ecosystem collapse could ensue, and jeopardise human communities in turn<sup>3</sup>.

The Government of Anguilla’s Climate Change Strategy (2012) and National Environmental Strategy (2005) recognised the pressing need for resilience to climate change, while the Biodiversity and Heritage Conservation Act called for action plans for Anguilla’s threatened species. However, international guidelines on species action planning offer surprisingly little advice on how to foster the adaptation of endangered species to climate change.

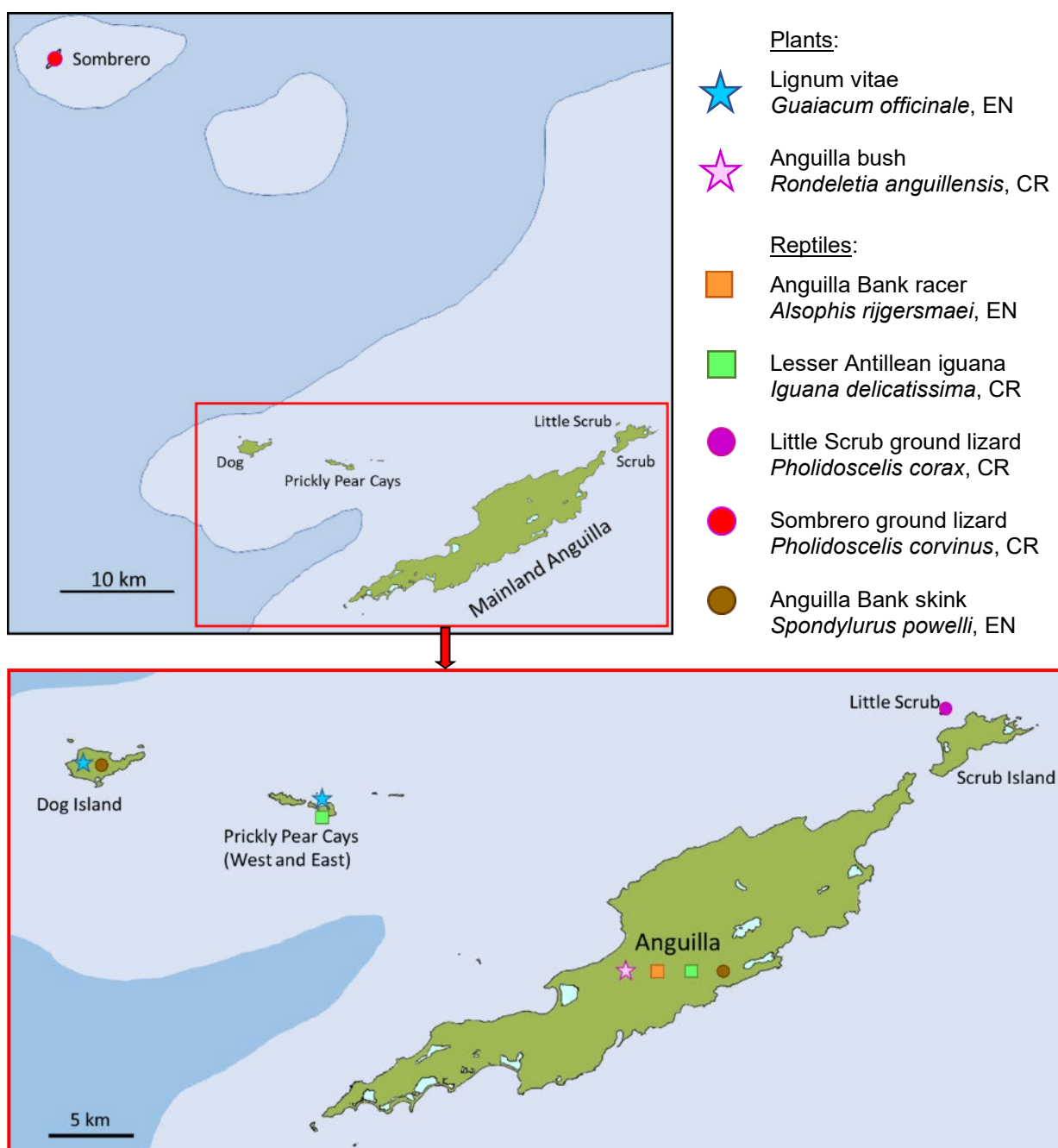
<sup>1</sup> Malcolm, J.R., Liu, C., Neilson, R.P., Hansen, L., & Hannah, L. (2006) Global warming and extinctions of endemic species from biodiversity hotspots. *Conservation Biology*, 20, 538–548.

<sup>2</sup> IPCC (2014) *Climate Change 2014: Synthesis Report*. Intergovernmental Panel on Climate Change, Geneva, Switzerland.

<sup>3</sup> Brown, N. (2008) *Climate Change in the UK Overseas Territories: An Overview of the Science, Policy and You*. Joint Nature Conservation Committee, Peterborough, UK.

This innovative project focused on safeguarding Anguilla’s seven globally threatened reptiles and plants most at risk from climate change impacts according to species vulnerability analyses: Lesser Antillean iguana *Iguana delicatissima* (Critically Endangered), Sombrero ground lizard *Pholidoscelis corvinus* (Critically Endangered), Little Scrub ground lizard *P. corax* (Critically Endangered), Anguilla Bank skink *Spondylurus powelli* (Endangered), Anguilla Bank racer *Alsophis rijgersmaei* (Endangered), lignum vitae tree *Guaiaicum officinale* (Endangered) and the Anguilla bush *Rondeletia anguillensis* (Critically Endangered). Most of these are restricted-range species that are endemic either to Sombrero Island or the Anguilla Bank, and they include some of the rarest species in the Caribbean. This work spans the whole of Anguilla including its offshore islands (Figure 1).

**Figure 1. Anguilla, showing its offshore islands and seven globally threatened species vulnerable to climate change.** Symbols signify confirmed presence of the species on the island, rather than exact localities. Island banks are indicated with paler blue (shallower sea): these were historically connected by land bridges and share the same flora and fauna. Note: Sombrero Island has always been isolated from the Anguilla Bank and has its own suite of endemic species, of which the Sombrero ground lizard is just one.



In what we believe to be a world-first, this project has enabled local stakeholders to develop a suite of species recovery actions that are specifically designed to boost the resilience of endangered reptiles and plants to climate change. The action planning process in Year 1 was highly participatory and incorporated innovative computer models to identify and test how alternative conservation actions could affect the species' prospects of survival. Years 2 and 3 of the project saw the implementation of priority conservation actions, such as combatting harmful invasive alien species, restoring habitats and reintroducing endemics to former ranges.

## **2 Project Stakeholders/Partners**

This Darwin project was developed at the request of the Anguilla National Trust (ANT) and was jointly led and coordinated by Fauna & Flora International (FFI) and ANT with technical input from other NGO partners named on the proposal: Durrell Wildlife Conservation Trust (Durrell) and the Royal Society for the Protection of Birds (RSPB). All four partners had a long history of working together on successful projects in Anguilla before this project began, and these relationships helped to establish the framework for constructive partnerships and a positive work environment.

Each project partner was actively involved in project planning and implementation throughout the three-year project. As project co-leads, the relationship between FFI and ANT was particularly close, with the two agencies working together on all aspects of survey design and implementation, training, stakeholder consultations, conservation action planning and implementation. Durrell and RSPB also played a role throughout the project period, contributing their expertise in species action planning workshops, the development of conservation action plans for endangered reptiles and plants, and provided additional training and mentoring. All four agencies formed a Project Steering Committee, established in Year 1, and met regularly by Zoom throughout the project's duration. In addition, to launch the project, we held a project inception meeting which was attended by representatives from the Anguilla Hotel and Tourism Association, the Department of Natural Resources, the Department of Physical Planning, and the Department of Lands and Surveys.

In addition to the involvement of national and international project partners, we also engaged a range of stakeholders, with residents completing surveys regarding their knowledge about the seven at-risk species, reporting sightings of the species as well as invasive species as we collected information about the distribution of endangered plants and reptile, making requests for the ANT to rescue and relocate Anguilla Bank racers from their properties, participating in pop-up education events at schools and workplaces, and community events to raise awareness about Anguilla's endangered species. Residents also volunteered and assisted with biodiversity and biosecurity monitoring on the offshore islands, worked with project staff to collect endangered plant seeds and plant seedlings, and assisted with the restoration of Sombrero Island by being a part of the team responsible for removing mice from the island and working with the ANT staff to revegetate the island.

Recognising the importance of high-level government buy-in and support, we have worked closely with the Ministry responsible for natural resources, meeting formally and informally with their Minister. Working with the Environment Unit-Department of Natural Resources and the Ministry, ANT successfully lobbied for the formal protection of the Anguilla bush, the Anguilla Bank racer, the Anguilla Bank skink, and both endemic ground lizards (Sombrero ground lizard and Little Scrub ground lizard) through the listing of the plants and reptiles as protected species within the Biodiversity and Heritage Conservation Act.

This project also allowed for enhanced regional collaboration. Throughout the project period, the project team continued to exchange technical skills with the Agence Territoriale de l'Environnement (ATE) in St Barthélemy (exchange of knowledge on how to construct artificial iguana nests and the ecology of Anguilla Bank racers, *lignum vitae* and Anguilla Bank skinks). FFI also enabled ANT to form a new partnership with the Government of Dominica's Forestry and Wildlife Division and the Dominican NGO WildDominique. The Forestry and Wildlife Division generously donated 10 healthy wild Lesser Antillean iguanas in Year 2 to aid recovery and combat inbreeding depression in Anguilla's small population (on Prickly Pear East). Through an exchange of field staff, our Dominican colleagues also benefitted in return from some practical and technical support from the Anguillan field team, who assisted with surveying and capturing invasive green iguanas, the construction of an iguana housing facility and the sharing of lessons learned and experiences related to iguana husbandry. This relationship has since been

formalised through the establishment of a wider, cross-region working group dedicated to the conservation of Lesser Antillean iguanas, with representatives from FFI, Anguilla, St. Barths, St. Eustatius, Guadeloupe and Martinique as well as representatives from Re:wild and Durrell and researchers from the Netherlands.

### 3 Project Achievements

#### 3.1 Outputs

This project had three main Outputs: 1. Climate change-informed species action plans produced by a participatory process for Anguilla's terrestrial endangered species that are most at-risk to climate change; 2. At least six priority interventions prescribed by the action plans to increase climate change resilience are implemented, monitored and evaluated; and 3. National capability to plan, manage, implement and monitor climate change-informed species conservation actions is raised, supported by enhanced technical skills and greater public awareness and cooperation.

#### **Output 1. Climate change-informed species action plans produced by a participatory process for Anguilla's terrestrial Endangered species that are most at-risk to climate change.**

During the first year of this three-year project, climate change-informed conservation action plans were produced for each species and combined into one document. The action plans were informed by a comprehensive desk-top literature review as well as rapid field studies in Year 1, during which we mapped the status and distribution of the seven target endangered species (Annex 6: 1).

Climate change vulnerability assessments were completed using NatureServe's established Climate Change Vulnerability Index with results presented in the report *Climate Change Vulnerability Assessment of Anguilla's Endangered Terrestrial Species*. The results of this assessment indicated that the Little Scrub ground lizard is "Extremely Vulnerable" to climate change primarily due to its severely restricted range that will only get smaller with sea level rise. The Sombrero ground lizard, Anguilla Bank skink and Anguilla Bank racer were rated as "Highly Vulnerable" while the Lesser Antillean iguana, Anguilla bush and lignum vitae were ranked as "Moderately Vulnerable." These rankings informed the development and prioritisation of conservation interventions in the endangered species conservation action plans.

As part of this project, we also needed to better understand the potential impacts that a changing climate might have on Anguilla's endangered species. Using existing forecasts and models, we found that climate change will have a profound impact on Anguilla's human population over the next 50 years, with regional forecasts predicting a 0.5-3.0°C increase in temperature and a likely decrease in precipitation across the northern Lesser Antilles, including Anguilla, an increase in intensity (greater windspeeds and higher rainfall) of tropical storms (including hurricanes) and sea level rise of at least 1 metre now being considered "inevitable." These impacts will have knock-on effects on our ecosystems and ecological processes as Anguilla's human population and economy adapts and responds to climate change, including its development choices and locations. As presented in our report *Climate Change Predictions for Anguilla: Considerations for Endangered Species Management* (Annex 6: 2), we were able to better understand and identify which habitats are liable to be lost and the areas where endangered species have the best prospects of surviving in the future. These results were also considered and integrated into the species conservation action plans.

We also conducted Population Viability Analyses (PVAs) for Lesser Antillean iguanas, Anguilla Bank racers, Sombrero ground lizards and Little Scrub ground lizards (Annex 6: 3): the Vortex software used for PVA analysis requires detailed information about population sizes and reproductive biology, which was available for these species only. By incorporating climate change forecasts into the Vortex (version 10) program and factoring in the expected loss of habitable areas over the next 50 years and expected changes in the severity of hurricanes, storm surges and droughts, we were able to determine the probability of population decline and extinction of each species should no conservation action be taken. The analyses made clear that if no action was taken, the target species would continue to decline and several would be extirpated within the next few decades. To the best of our knowledge, this is the first time that the projected impacts of climate change have been incorporated into PVAs for reptiles. Using our PVA models, we

were also able to show the likely outcomes of implementing the conservation action plans on the long-term prospects of these species.

The evidence-based, climate change-informed action plans for the seven target endangered reptiles and plants were then developed through a series of participatory workshops facilitated by FFI in Anguilla in Year 2. The plans set out the expected goals and objectives for each species, and indicators of success. They also identified needs and opportunities for national, regional and international collaboration and should be living documents that can be updated and revised as additional information is collected and as the results of conservation actions become apparent.

**Output 2. At least six priority interventions prescribed by the action plans to increase climate change resilience are implemented, monitored and evaluated.**

Priority interventions to increase climate change resilience amongst Anguilla's most at-risk species included the tasks set out in the project proposal (increasing the Lesser Antillean iguana population by at least 20%, at least 300 endangered plant seedlings planted and thriving, eradicating mice from Sombrero Island, maintaining four offshore cays free from harmful invasive alien vertebrates, reintroducing at least one at-risk reptile to a secure offshore cay) as well as several new tasks that emerged from the conservation action plans (e.g. increasing plant cover and diversity on Sombrero and Little Scrub islands, lobbying for the inclusion of all threatened reptiles and plants on Schedule 1 of the Biodiversity and Heritage Conservation Act, and developing a fundraising strategy for land acquisition by the ANT).

In March 2021, we translocated 10 healthy sub-adult Lesser Antillean iguanas from Dominica to Prickly Pear East and confirmed evidence of success breeding (juveniles observed) on Prickly Pear East. It is therefore safe to conclude Anguilla's national population of Lesser Antillean iguanas has increased by more than 40% since the project began.

Our target of planting over 300 endangered plant seedlings was almost achieved by the end of Year 3. Over 320 lignum vitae seedlings were grown from seed in nurseries, with over 240 planted by the ANT, the Government of Anguilla (Department of Natural Resources) and members of the community to date. Lignum vitae are relatively slow-growing trees and we achieved a far higher survival rate when the trees were grown in pots until they were more than 24" in height. We planted 56 larger seedlings in the last two months of the project and still have over 80 healthy seedlings in pots that will be planted post-project. Having been unsuccessful in propagating the Anguilla bush from seed, we have re-doubled our efforts to protect existing colonies in the wild. During the last year of the project, we secured GBP [REDACTED] to enable ANT to purchase a parcel of land adjacent to Fountain National Park that contains over 100 Anguilla bushes. ANT is currently in negotiations with the landowners to purchase the parcel and integrate it within the Fountain National Park.

To reverse the decline of the Critically Endangered Sombrero ground lizard, among other rare endemics, it was clear that invasive alien house mice (*Mus musculus*) had to be removed from Sombrero Island. The mouse eradication was successfully carried out by staff and volunteers from 14 June to 9 August 2021, under the leadership of John Tayton (FFI) and Toby Ross (FFI), with remote advisory support from Elizabeth "Biz" Bell (Wildlife Management International Ltd.). The eradication campaign involved positioning 914 temporary bait stations on a 20m x 20m grid (10m x 10m within the more vegetated part of the island). Interspersed amongst the bait stations were 1800 monitoring points. Klerat® bait (which contains the rodenticide brodifacoum) and a combination of non-toxic wax, soap, chocolate resin, trail cameras, mouse tracking pads, and chew cards were checked daily for signs of mice. Although baiting and monitoring took place over eight weeks, there were no further signs of live mice 22 days after baiting began. No native animals were harmed in the process.

Through regular and ongoing biosecurity on Dog Island, Prickly Pear East and West, Sombrero Island, and Little Scrub Island, these islands are being protected from incursions by rodents and other harmful aliens. Monitoring of these offshore islands has shown promising improvements in the status of native animals and plants. For example, a mark-resight survey on Sombrero Island in Year 3 produced a population estimate of  $884 \pm 103$  individuals. This is significantly higher than the previous estimates of  $463 \pm 68$  calculated using the same method in 1999 and only  $253 \pm 59$  individuals in 2019. The lizard population now has good prospects for further growth now that the island is free from predatory mice.

The project team also conducted seabird surveys on Sombrero Island in July 2021, with results analysed and presented in the report *Sombrero Island Marine Park Nature Reserve Seabird Census 2021*. We have also been compiling data on terrestrial and wetland birds, with a species list and numbers being recorded on eBird, and have mapped the extent of vegetation on the island. As part of the post-mouse eradication biodiversity monitoring programme on Sombrero Island, ANT has pledged to continue to monitor the recovery of lizards, birds, and vegetation, with annual surveys being proposed for the next five years, tapering to one survey every five years thereafter.

On Pricky Pear East, searches for the reintroduced population of Lesser Antillean iguanas were conducted every few weeks, whenever biosecurity monitoring trips were scheduled. Over the project period we have resighted 17 iguanas (adult and sub-adult, and indication that the population is breeding). To improve national monitoring of the Lesser Antillean iguanas on Pricky Pear East, the project team developed comprehensive monitoring protocols, drawing on methodologies applied in St. Eustatius, St. Barthélemy and the Cayman Islands (Annex 6: 4a, 4b, 4c). These protocols are scheduled to be applied this summer (2022), allowing us to properly assess and monitor their numbers and demographics.

During Year 2 of the project, we engaged Pricky Pear Cays' landowners in discussions about reintroducing Anguilla Bank skinks to Pricky Pear East and translocating Little Scrub ground lizards to Pricky Pear West. While we secured permission from the majority of landowners, two expressed reservations: we thought it prudent to hold off translocating any animals for the sake of ANT's existing relationships and reputation until there was consensus amongst all landowners. As soon as we realised that the translocations were unlikely to be achieved within the project period, we requested a change in our project indicators; replacing the reintroduction/translocation of at least one endangered reptile to an offshore cay with another priority that had been identified in the new species conservation action plans. After consulting with all project partners, FFI engaged expert regional botanist Kevel Lindsay to undertake an assessment of Little Scrub's flora and to provide recommendations for the island's restoration (Annex 6: 5). Based on his report *Suggestions for Restoring and Maintaining Plant Cover on Little Scrub Island, Anguilla and Protection of Natural Habitat at Fountain Cavern*, FFI and our partners decided to begin trials to restore Little Scrub through planting native vegetation to improve the habitat and food supply of the endemic Little Scrub ground lizard. We planted and monitored the survival of buttonwood *Conocarpus erectus* and seagrape *Coccoloba uvifera* seedlings and extended the range of prickly pear cacti *Opuntia dillenii* on the small island. All plants are still alive at the time of writing and the prickly pear plants are even producing new pads. Stanley Rogers, an Anguillan fisher who has helped to maintain Little Scrub ground lizard population (and was recognised globally as a Disney Conservation Hero) has also been assisting with watering the new seedlings on the island.

Additional measures during the project period were identified in the conservation action plans, including:

- To continue restoring Sombrero Island after the invasive mice were eradicated, Caribbean ecologist Kevel Lindsay was contracted by FFI to assess the island's flora and to provide recommendations for reintroducing native plants. Early ecological reports from Sombrero Island suggest that many species of plants were on the island before 1860 when guano mining transformed the island's topography and ecology. Mr Lindsay recorded only 12 species of plants on Sombrero but identified a further 74 species that were likely native to Sombrero and could be reintroduced. In his report, *On the Flora of Sombrero Island, and Opportunities for Vegetation Restoration*, Kevel made a further 31 recommendations for plant restoration, including establishing a solar-powered irrigation system and nursery on Sombrero (Annex 6: 6a, 6b, 6c). Following his report, the project team, with assistance provided by the Agriculture Unit-Department of Natural Resources, have been trialling the growth of over a dozen plant species from seed (treated prior to planting on Sombrero to prevent the accidental spread of invasive species) on the island. Seed germination and seedling survival and growth have been monitored. Over a dozen different types of seeds have been planted on the island, of which three species have germinated so far (spider lily *Hymenocallis caribaea*, morning glory *Ipomoea pes-caprae* and sea bean *Canavalia roseus*). These vegetation restoration efforts are ongoing. With additional funds from the Prince of Wales's Charitable Fund, we will construct a nursery *in situ* where seeds will be germinated

in substrate found on Sombrero and then hardened off before being planted in suitable locations.

- Building on our successes in restoring Anguilla's offshore islands, FFI and ANT conceived the idea of establishing a "mainland island" by building a high-tech, pest-resistant, storm-proof barrier around Fountain National Park. This is an innovative way to create a biosecure wildlife sanctuary for Anguilla's native and endangered species, which could also serve as a visitor attraction. As part of this project, Wildlife International Management Ltd. was contracted to assist the project team to complete a feasibility study for the proposed Fountain National Park mainland island (Annex 6: 7). The study found that a mainland island could be constructed and would be an effective means of protecting Anguilla's native biodiversity. FFI, with ANT and the Government of Anguilla, has since secured Darwin Plus funding to create the mainland island.
- Using evidence from research conducted by this project in Year 1, the project team, with support from the Department of Natural Resources, successfully lobbied the Government of Anguilla to update Schedule 1 of the Biodiversity and Heritage Conservation Act to formally protect all endangered reptiles and plants, remove the invasive alien green iguana from the list of protected species, and update the conservation status of species already listed. The legislative amendments were taken to the House of Assembly on 4 March 2021 and accepted, with unanimous approval from both the Government and the Opposition (Annex 6: 8a, 8b, 8c). Putting Anguilla's most endangered terrestrial species on the protected list underscores the need to continue to implement conservation action plans and affords natural resources management agencies with the legal mandate to act.
- During biodiversity surveys on Sombrero Island in 2019, we collected an anole (genus *Anolis*) specimen that may be a new undescribed species and are currently awaiting the results of its genetics analysis, which is being conducted by Prof. Blair Hedge's laboratory in the USA. The lab has confirmed that the pygmy geckos (genus *Sphaerodactylus*) on Sombrero are a new species endemic to this island, and will include it in a forthcoming monograph on Caribbean pygmy geckos.
- As part of the reintroduction of Lesser Antillean iguanas to Prickly Pear East by translocating iguanas from the Anguilla mainland and Dominica, we conducted genetic testing of all individuals prior to relocation to ensure they were purebred Lesser Antillean iguanas (and not Lesser Antillean-common green iguana hybrids or common green iguanas). Genetic testing was conducted by Genindexe (France). Results of the genetic analysis are now being used as a part of a region-wide analysis of interspecific variation within the Lesser Antillean iguana.

### **Output 3. National capability to plan, manage, implement and monitor climate change-informed species conservation actions is raised, supported by enhanced technical skills and greater public awareness and cooperation**

Through training and mentoring local partners, residents of Anguilla, and regional counterparts (a total of 77 persons – 42 male, 35 female), this project has built local capacity to assess, manage, protect and restore Anguilla's endangered species populations and the habitats on which they rely. This increased capacity will also allow ANT and other natural resources management agencies to continue to implement priority conservation interventions in the reptile and plant conservation action plans, including continuing to enhance habitat through planting native vegetation on the most degraded offshore islands, creating perches for passerines that help disperse seeds for natural revegetation, advancing negotiations with offshore island landowners to reintroduce and protect endangered species, continuing biodiversity recovery monitoring and carrying out critical biosecurity monitoring to prevent invasive vertebrate mammals incursions on the offshore islands.

With most endangered species conservation actions occurring on the offshore islands, we are delighted that we were able to secure funding from the Prince of Wales's Charitable Fund, Betty Liebert Trust and other sources to purchase a fit-for-purpose vessel for the ANT (Activity 3.8). This boat, which was launched in November 2021, provides ANT with the flexibility to conduct biodiversity and biosecurity work on the offshore islands as required and on their schedule. Although there are ongoing vessel maintenance and insurance costs, ANT owning a vessel is far more cost-effective than renting charters or fishing boats. For example, whereas renting a boat

to travel from mainland Anguilla to Dog Island used to cost USD 750, the new vessel costs only USD 40 in fuel to make the same journey. The new vessel has been named the *Corvina*, after the Sombrero ground lizard *Pholidoscelis corvinus*.

Raising the profile of Anguilla's endangered species and the importance of protecting the territory's natural heritage has been a significant component of this project. Over the last three years, we have reached over 66,000 individuals through the project's online presence (especially through ANT's social media platforms directed to local audiences), public and school presentations, experiential learning opportunities by engaging residents and visitors directly in our work, biodiversity festivals, and pop-up events at schools, business and public spaces (Annex 6: 9a-9g). Through this work, ANT is now recognised as the local agency to contact with concerns about invasive green iguanas, requests to remove racers or questions regarding species identification. ANT has also been asked to sit on the Department of Natural Resources' DPLUS125 *Protecting Anguilla biodiversity by building capacity in invasive plant management* Steering Committee, due to their increased experience with invasive species eradications, extensive experience in conducting fieldwork and knowledge of Anguilla's native and invasive species.

In addition to raising local awareness, FFI and ANT have also shared project methods and lessons learned with natural resources managers with the UKOTs and other Caribbean islands (Annex 6: 10a-10i). One of the most significant impacts of these regional interactions has been the partnership that was established with WildDominique and the formation of the regional Lesser Antillean iguana working group of which FFI, ANT and Durrell are all members. This working group takes a regional approach in developing and implementing a regional Lesser Antillean iguana action plan; the draft regional plan includes conservation interventions and priorities that overlap those in Anguilla's new reptile conservation action plan (Annex 6: 11a, 11b).

### **3.2 Outcome**

The project outcome is the increased resilience of globally threatened species in Anguilla to climate change through climate-informed recovery interventions, strong management competences, and a more supportive civil society.

Having reached the end of the Darwin Plus grant period, we strongly believe that we have met the outcome. Based on the results of the Population Viability Analyses, the status of target species will be significantly improved by the measures set out in the conservation action plans and many of these have already been implemented or are underway. For example, increasing population sizes and genetic diversity through translocations (Lesser Antillean iguanas), removing invasive alien predators and enhancing habitat quality (Sombrero ground lizard, Little Scrub ground lizard), reintroducing species to a wider area (lignum vitae), strengthening the legal protection of all seven endangered species, and taking steps to protect critical areas where species are present (Anguilla bush) and into which species can be reintroduced (Anguilla Bank racer, Anguilla Bank skink).

With the translocation of subadult Lesser Antillean iguanas to Prickly Pear East from Dominica and successful reproduction on the island, we have increased their population by over 40% and Sombrero ground lizards have shown an increase of 250% since 2019. With negotiations underway to purchase a parcel of land adjacent to Fountain National Park that also contains at least 100 Anguilla bushes, we are positioned to double the number of plants in protected areas (10% of the global population). Having determined that a biosecure "mainland island" is feasible at Fountain National Park, and secured the funding necessary (with funds from Darwin Plus, Round 10, and other sponsors), we will also restore and protect a habitat that will support the reintroduction of both Anguilla Bank racers and Anguilla Bank skinks (Annex 6: 12).

The ongoing, long-term implementation of the reptile and plant conservation action plans has already been integrated into ANT work plans, strategic plans, and annual and projected budgets. Furthermore, additional project funding has been secured (from Prince of Wales's Charitable Foundation, John Ellerman Foundation, Darwin Plus, the European Commission's BEST 2.0+, and the European Union's Resilience, Sustainable Energy, Marine Biodiversity Programme) to continue aspects of work initiated under this project.

We have also increased national capacity in Anguilla through training and mentoring eight natural resource managers and 86 volunteers (including two ANT interns) over the course of the project



(Annex 6: 13a, 13b). The level of direct engagement with the wider public in the implementation of this project and the number of individuals who continue to volunteer with the ANT to implement biodiversity conservation actions both on the Anguilla mainland and offshore islands is heartening. While changes in attitudes and behaviour may take years to manifest, it is encouraging that individuals outside of the conservation field are interested and willing to learn about the work that is being done, to assist the team in our conservation efforts, and ultimately, to become ambassadors for Anguilla's natural heritage.

### **3.3 Monitoring of assumptions**

Nine critical conditions (risks and assumptions) were identified during the project development stage:

#### **1. Climate change impacts, including human land use, are forecast within sufficiently accurate bounds**

When we developed the endangered species action plan (Output 1), we used the most up-to-date climate change projections for this region and cross-checked our findings with the storm surge models developed by Environment Systems Ltd for DPLUS091 (also in Anguilla). These projections show that Anguilla's lowest-lying areas on the mainland and offshore islands will be inundated through sea level rise and/or storm surges. Anguilla is already feeling the effects of climate change, with a shrinking coastline, severe storm surge events and more severe hurricanes. During the action planning process, we projected that with a changing coastline, we could expect increased pressure on interior lands with people relocating away from coastal areas. There is some evidence of this already starting. With a downturn in the economy following Hurricane Irma and 2017 and more notably following the Covid-19 pandemic and global restrictions particularly on international travel, the Government of Anguilla and the banking sector have taken steps to stimulate national spending, including through the offer of zero-finance loans for residential and commercial construction. Over the last few years, there has been a visible increase in construction activity across the Anguilla mainland which has led to the clearing of natural vegetation. With beachside tourism potentially being undermined, there may also be a move towards increased farming, fishing and other livelihoods which may also lead to further habitat conversion or degradation.

While our predictions related to land conversion and habitat loss were not initially made with Covid-19 in mind, the results of the pandemic have been similar – there has been increased pressure on inland habitats on the mainland and the amount of land available for native species is shrinking. Anguilla's smaller and more remote offshore islands remain the best hope for conserving many of the territory's endangered and endemic wildlife.

#### **2. Action plans correctly identify and address the main threats, capacity needs and resources to achieve true species recovery and resilience**

The action plans for Anguilla's most at-risk plants and reptiles were developed and combined through a participatory process involving government and non-government agency representatives, community members, and technical experts. The problems and solutions we identified were also informed by a sound understanding of conservation biology (e.g. the risks and effects of bottlenecks and inbreeding depression) and the findings from climate change modelling. Furthermore, we conducted Population Viability Analyses (using Vortex™) to help inform and test viable solutions and applied IUCN guidelines for major interventions, including wildlife translocations and invasive species eradications. The combined species action plan (Annex 6: 14) is thus based on best available scientific information and international best practices but carefully tailored to Anguilla to ensure the planned interventions are genuinely feasible and make effective use of both existing and anticipated future resources.

This is a 10-year action plan that extends beyond the timeframe of this Darwin Plus grant but is meant to be a working document that is regularly reviewed and updated as new evidence and opportunities arise. For example, our vegetation restoration efforts on both Little Scrub and Sombrero islands to enable their endemic reptiles to become more resilient to climate change have so far been experimental and iterative. We have been testing different planting approaches as well as different species to see which may successfully grow given the soil, temperature, and rainfall conditions. We are encouraged by the improvements and benefits that we are seeing so far. For example, reintroduced Lesser Antillean iguanas are successfully breeding, our vegetation

restoration activities are proving somewhat successful despite the harsh conditions found on both Little Scrub and Sombrero, endemic ground lizard populations are being maintained if not increased, and formal legal protection affords us with a tangible mechanism to take necessary action to protect Anguilla's at-risk species. The entire project team is committed to the ongoing implementation of the action plan and monitoring results and impacts for the benefit of the island's biodiversity long after the end of this grant.

### **3. Major field activities can be rescheduled if extreme weather events occur during the grant period**

We have been fortunate not to have been affected by any extreme weather events during this grant period and no field activities needed to be rescheduled for this reason.

### **4. Sufficient data exist to support consensus within Anguilla on the likely impacts of climate change**

Government ministries have accepted the Department of Natural Resources' draft climate change policy and the private sector and community members broadly agree that climate change is affecting Anguilla through more severe storms/hurricanes and longer droughts. The Government of Anguilla was also represented at COP25 in Glasgow in late 2022 and the importance of Anguilla's biodiversity and the need to protect it was reiterated in statements made by Parliamentary Secretary Quincia Gumbs-Marie (Economic Development, Natural Resources and Information Technology) during the Conference and in side-meetings.

### **5. National and regional stakeholders continue willingness to cooperate on biodiversity conservation initiatives**

Throughout the project period, community members regularly contacted ANT staff about sightings of endangered reptiles as well as invasive species – interactions and calls that have continued since the Darwin Plus grant ended. Property owners have expressed a high level of interest in growing the attractive native *lignum vitae* trees in their gardens, for example, over 100 individuals have already taken seedlings to plant. Prickly Pear East landowners continue to be supportive of the reintroduction of Lesser Antillean iguanas to this offshore island and the owners of both the Prickly Pear Cays and Dog Island have granted their approval for trained ANT staff to conduct biosecurity monitoring on their islands in perpetuity.

The Government of Anguilla has also clearly shown its commitment to endangered species by including all of Anguilla's endangered plants and reptiles on the list of protected species (Schedule 1 of the Biodiversity and Heritage Conservation Act). This listing was a direct result of the evidence provided by this project, which presented data on population sizes, trends and distribution, and the lobbying efforts of the ANT and the Department of Natural Resources. The Government of Anguilla is also a full project partner on the new Darwin Plus project (DPLUS158) that will turn Fountain National Park into a mainland island sanctuary for native and endangered wildlife, including Anguilla Bank racers, skinks, *lignum vitae* trees and Anguilla bushes. ANT are also working with the Government of Anguilla to secure additional parcels of land to increase the size of the National Park (and mainland island). The ANT has secured approximately GBP 230,000 for a land purchase, with FFI's assistance, and are negotiating with the current landowners.

### **6. Young plants can be successfully transplanted from high-risk areas to protected sites**

During the Darwin Plus grant period, our team has attempted to grow both *lignum vitae* trees and the Anguilla bush from seeds, wild seedlings and cuttings. We have successfully grown *lignum vitae* trees from seed and have transplanted seedlings: we found a higher success rate with planting seedlings grown from seeds, but our colleagues on St. Barths have demonstrated that even mature *lignum vitae* trees can be transplanted.

Our efforts in growing the endemic Anguilla bushes from seeds, wild seedlings or cuttings have been less successful, but our team will continue researching how to grow the species *ex situ* with continued assistance from local partners. Fortunately, our field surveys (Activity 1.1) led us to discover several sites that, while small, contain relatively high concentrations of this species, including on a land parcel directly adjacent to Fountain National Park. This land is for sale and

the ANT has been able to secure funds for its purchase which they are currently negotiating. Purchasing this parcel will double the number of Anguilla bushes in protected areas. The Government of Anguilla has been engaged in these discussions and is working with the ANT to facilitate the purchase.

## **7. Trained expertise remains in Anguilla**

Ninety-two individuals (51 male, 41 female) benefitted from training throughout the project period, including two new ANT interns, who joined the team in September 2021, and other residents. Although we cannot prevent key persons from leaving Anguilla, we have purposefully trained and involved numerous individuals to reduce the risk of critical loss of expertise. In addition, by training all ANT staff and by providing ongoing support, ANT is now equipped to continue to train others in biodiversity and biosecurity monitoring, planting, habitat restoration, and other conservation interventions included within the endangered species action plans.

## **8. Improved knowledge leads to improved behaviour to conserve biodiversity**

While behavioural change can be difficult to assess over the short term, there are already clear indications that this project's public engagement initiatives have influenced people's perceptions and their relationships with nature. Project team members in Anguilla regularly receive calls to report sightings of Anguilla Bank racers, iguanas and skinks (which was not the case before the project started). Staff have even been asked to rescue snakes trapped in water tanks and storage areas and – while most people understandably still find it difficult to distinguish between the native Lesser Antillean iguana and the invasive common green iguana – we have received requests to save iguanas that have become stuck in outdoor washing machines and even an open tomb! Unfortunately, the reports of “Anguilla Bank skink” sightings often turn out to be the invasive alien Underwood's spectacled tegu *Gymnophthalmus underwoodi*. Nevertheless, we view all these calls as positive signs that the public is opting to report or request assistance, rather than merely kill the reptiles or leave them to die.

ANT's ongoing educational work with children and “pop-up” outreach events in schools and public areas have also helped to bring people closer to nature while also providing a safe space to ask questions and overcome fears. Although these outreach and engagement efforts were limited at times by the Covid-19 pandemic, ANT is committed to continuing this important work.

## **9. The Covid-19 pandemic does not critically disrupt or diminish the project Outcome**

This last assumption was added during Year 2 of the project. Please see Section 9 for additional details.

## **4 Project support to environmental and/or climate outcomes in the UKOTs**

The purpose of this project was to enhance the resilience of Anguilla's threatened biodiversity and to inspire other islands to incorporate climate change in species action planning, potentially using similar methods and approaches.

This project directly supported Anguilla's ability to achieve long-term outcomes for the natural environment, including delivering commitments made under and through various national strategies, policies, and legislation listed below. This project also contributed towards the 2030 Agenda and the Convention on Biological Diversity Aichi Targets (although not explicitly extended to Anguilla). Over the last three years, this project has involved and supported tangible on-the-ground action that has led to improved biodiversity and ecosystem health as well as the protection of endangered plants and reptiles and the enhancement of the habitats on which they are found in and rely on. One of the most significant accomplishments of this project has been the formal listing of all endangered plants and reptiles as protected species on Schedule 1 of the Biodiversity and Heritage Conservation Act, giving room and formal acknowledgement to the need for targeted actions and interventions that protect and support the species.

We also developed stakeholder- and climate change-informed, evidence-based conservation action plans for two species of endangered plants and five species of endangered reptiles. Priority actions were identified and successfully implemented (please refer to Section 3.1) and included, most notably, increasing the population of Lesser Antillean iguanas by creating a safe space, free of invasive green iguanas, on Prickly Pear East (where they have successfully

reproduced as well as through the translocation of an additional 10 individuals from Dominica, thereby increasing the genetic pool and reducing inbreeding risk), and increasing the resilience of the Sombrero ground lizard population by eradicating invasive alien mice and reintroducing native plants to Sombrero. All priority actions identified and implemented spoke directly to the action plan's goal: *to improve the status and resilience to climate change of Anguilla's endangered species through collaborative conservation actions, resulting in a healthier, more attractive and balanced environment for the benefit of people and biodiversity.*

More broadly, this project aimed to instil a sense of pride and shared responsibility for the conservation and protection of Anguilla's biodiversity amongst the public. FFI and its partners have actively engaged residents by involving them in on-the-ground conservation action, through outreach and public awareness activities, citizen science and stewardship opportunities, and by ensuring that they knew and understood that the ANT would always be there to respond to their calls, address their concerns, and to work with them to ensure that Anguilla's natural heritage is protected for generations to come.

### **Contributions to themes and priorities of the Government of Anguilla and multilateral environmental agreements**

This project has made contributions to themes and priorities of both the Government of Anguilla as well as multilateral environmental agreements (including those that have yet to be extended/adopted by Anguilla). More specifically, through producing and rolling out the stakeholder- and climate change-informed species action plan, this project contributed to:

- The National Biodiversity Strategy and Action Plan (Annex 6: 15), which calls for the gathering of data on “activities that have significant adverse impact on the conservation and sustainable use of biodiversity” and “conservation and sustainable use of biodiversity *in situ* and *ex situ*.”
- The National Environmental Management Strategy (Annex 6: 16), which calls for the “meaningful participation of civil society in decision making,” “addressing the causes and impacts of climate change,” “protecting cultural and natural heritage,” and “protecting and conserving biodiversity.”
- The Climate Change Policy (Annex 6: 17), which calls for the implementation of “a national strategy for conservation and sustainable use of biodiversity.”
- The Biodiversity and Heritage Conservation Act (Annex 6: 18), which provides the legislative requirement for action plans for species listed as threatened or endangered within Schedule 1 of the Act.
- Agenda 2030, which calls for “urgent action to combat climate change and its impacts” and the protection, restoration, and promotion of “sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.”
- The Convention on Biological Diversity, which calls for improving our “knowledge, science base, and technologies relating to biodiversity its values, functioning, status and trends, and the consequences of its loss.”

This project also built the capacity of natural resource managers and decision-makers to take an evidence-based approach to plan and mitigate climate change impacts on Anguilla's species and habitats, engage public support and coordinate actions on both the mainland and offshore islands. This project therefore also contributed to additional aspects of:

- The National Biodiversity Strategy and Action Plan, which calls for an “research and training” as well as “exchange of information” as it relates to natural resources management.
- The Climate Change Policy, which calls for “improved understanding of the factors that influence adaptation decision-making.”
- The Convention on Biological Diversity, which calls for increasing public awareness “of the values of biodiversity and the steps they can take to conserve and use it sustainably.”

### **The decision-making process**

This project made effective use of existing partnerships, networks, and relationships and directly influenced how decisions were made to protect and conserve endangered species and the spaces on which they depend. For example, following comprehensive surveys that included community reporting and verification, results from this project were submitted to the Ministry responsible for the natural environment and used to update Schedule 1 of the Biodiversity and Conservation Act: the Little Scrub ground lizard, the Sombrero ground lizard, the Anguilla Bank skink, and the Anguilla Bank racer were all added to the list of protected species while the invasive common green iguana was removed (Annex 6: 8a). While it is argued that legislative change can take time – and it often does – our experience in Anguilla has shown that with data, sound arguments, the need for swift action and combined lobbying from relevant agencies (ANT and the Department of Natural Resources) legislative change can be accomplished in months rather than years. While the ANT and the Department of Natural Resources have always had the mandate to conserve Anguilla’s biodiversity, these legislative amendments provide the highest level of support possible for the development and implementation of an endangered species action plan.

Implementing the action plan has involved multiple stakeholders including landowners, young people and the community as a whole. Most of Anguilla’s endangered species are found on private lands and the cooperation of residents of Anguilla has been essential for not only the success of this project but long-term species conservation. Ensuring that the conservation action plans were stakeholder-informed, involving community members in reporting, biodiversity and biosecurity monitoring and providing opportunities for experiential learning have been critical.

## **5 OPTIONAL: Gender equality**

The day-to-day management of this project was handled by a predominantly female team comprised of the Project Leader (first Dr Jenny Daltry and later Mr Olivier Raynaud), Project Coordinator Dr Louise Soanes and the Project Co-Leader (and ANT Executive Director) Farah Mukhida. The Project Steering Committee was approximately 50% female and the project to date has trained 92 persons, 41 (45%) of them are female. Overall, there was gender balance both in terms of leadership and beneficiaries of training and learning opportunities.

## **6 Sustainability and Legacy**

Over the last three years, there have been many accomplishments. Invasive alien mice have been eradicated from Sombrero Island and, through ongoing biosecurity monitoring, we have worked (and will continue to work) to ensure all of Anguilla’s restored offshore islands remain free from rodents, green iguanas and other key invasive species. These islands – Sombrero, Prickly Pear East and West, Dog Island and Little Scrub – provide critical habitat to some of Anguilla’s rarest reptiles, plants and other taxa. The permanent eradication of rodents from these islands increases the resilience of species to climate change, by allowing their populations to grow and improving the quality of their habitats. We have also been working to restore natural habitats by planting vegetation on Sombrero Island and Little Scrub. The project team is committed to continuing these restoration actions, having built this work into ongoing work programmes and other externally-funded projects. Standardised monitoring has been established on all of the offshore islands to track changes over time in species diversity, population sizes, and habitat condition. With a nursery dedicated to supporting community-based planting activities, *lignum vitae* trees will continue to be propagated and shared for backyard gardens across the Anguilla mainland. While the project was not successful in propagating Anguilla bushes in nurseries, we have not given up hope and will continue to work with local and regional experts to develop solutions. Community members continue to request the relocation of Anguilla Bank racers from their properties and the construction of a mainland island at Fountain National Park will soon provide Anguilla with a protected, Crown-owned space where future releases can occur.

During the development of proposals, including that of this project, the project team has always considered whether there is a need to evolve into ongoing programme activities. With a ten-year endangered species action plan having been developed as part of this project, there must be a long-term commitment to ensure the recovery of endangered species populations in Anguilla. The endangered species action plan has therefore been integrated directly into the ANT’s

strategic plan, recognising that many of the actions already initiated will continue post-project and some indefinitely, using capacity developed through this project.

Building the capacity of our local partner agency, ANT, to conduct and continue the work has been crucial to the success of the long-term implementation of the conservation action plan. Capital equipment was secured, including a vessel which will allow for long-term monitoring, protection and conservation actions on the offshore islands (Activity 3.8). A plant nursery, located on the Agriculture Grounds of the Department of Natural Resources, has been constructed to support planting activities of another Darwin Plus-funded project (DPLUS091) and will allow us to continue to grow endangered plants in a secure location until they are ready for planting. Seven ANT staff members, two ANT interns, and 92 individuals have been trained in island restoration and biosecurity monitoring. With increased capacity and confidence, ANT staff collected all field data required for the completion of the Fountain National Park mainland island feasibility study.

FFI will continue to collaborate with ANT (as the local partner), the Government of Anguilla, Durrell and Wildlife Management International Ltd. to establish Anguilla's (and potentially the region's) first mainland island, with a further grant from Darwin Plus (DPLUS158).

Building on her experiences with natural resources management and especially endangered species conservation, we are also pleased to add that Marlene Horsfield, one of ANT's interns, will be pursuing a Master's degree in natural resources management at a UK university this coming September.

## **7 Lessons learned**

This project progressed well throughout its three-year duration, thanks to the strong working relationships amongst FFI, ANT, Durrell, RSPB and the Ministry as well as the Department of Natural Resources, and our growing understanding of the project sites and target species. Even though FFI was the lead applicant for the Darwin Plus grant, the proposal was developed through a participatory process and the lead national partner, ANT, has always felt a real sense of ownership and commitment to ensuring project success. Given that most field team members and trainers were involved in several projects, one of the keys to success during the project period has been good coordination and developing and using detailed monthly work plans that covered all activities of this Darwin Plus project as well as other projects in Anguilla. The consolidated work plan was developed annually by the Project Leader and Co-leader and directly informed the ANT staff work plans and targets.

Some of the greatest successes, as well as challenges, of this project were related to stakeholder engagement and involvement. The ten-year action plan that we developed during the first year of the project was directly informed by stakeholders – the public and private sectors as well as community members. Our ability to collect baseline data to inform these plans was also enabled by the landowners who act as stewards of Anguilla's biodiversity: with 97% of Anguilla's land privately owned, the future of Anguilla's biodiversity directly lies in the hands of the island's residents. Landowners allowed our local project partner to survey their properties. They also reported endangered species sightings and allowed us to relocate animals, and collect seeds and plants. The landowners of the Prickly Pear Cays allowed us to also maintain Prickly Pear East as a Lesser Antillean iguana sanctuary.

At the same time, a minority of Prickly Pear landowners changed their minds about extending the Prickly Pear Cays as a sanctuary for other endangered reptiles, including the Little Scrub ground lizard and Anguilla Bank skinks (Activity 2.7). Through ongoing discussions with the landowners, we were able to determine that their withholding of permission was in part linked to a misunderstanding of the ANT's position on a proposed development in their community on the Anguilla mainland: they believed that the ANT was supportive of the proposed development when this was in fact not the case. While we have continued to engage with these landowners, we recognised that there were other issues and concerns related to land use and ownership, and these concerns spilt over into our discussions about protecting Anguilla's biodiversity. We recognised that the timing to engage in these types of discussions was poor and that the issues surrounding the Government's proposed plans on the mainland would need to be first resolved before we could re-enter negotiations about the use of the Prickly Pear Cays as an endangered species sanctuary. While we have always known how controversial discussions related to land in UKOTs can be, this case reminded us how important it is to maintain open and transparent

communication: In small communities, misinformation can spread and influence positions and perceptions.

At the same time, we saw how powerful stakeholder engagement can be for biodiversity conservation. Our outreach activities, especially amongst Anguilla's young people, have undeniably led to a better appreciation of and pride in Anguilla's natural heritage. Local partners have seen the positive reactions amongst children when they see an Anguilla Bank racer for the first time. They have heard the concern in landowners' voices when they have called asking them to remove or save a reptile from being trapped or killed by a pet. They have experienced the excitement of volunteers who have their first opportunity to visit the offshore islands, see a Lesser Antillean iguana, a Sombrero ground lizard or a Little Scrub ground lizard. And after a year of not being able to hold outdoor learning programmes because of the Covid-19 pandemic, they are now receiving regular requests from parents who want to enrol their children in nature-based educational programmes so that they can once again learn about Anguilla's biodiversity and (re)connect with nature.

### **7.1 Monitoring and evaluation**

The monitoring and evaluation plan was implemented as described in our proposal. FFI and ANT—specifically, Dr Jenny Daltry/Olivier Raynaud (Project Leader), Farah Mukhida (Co-Project Leader) and Dr Louise Soanes (Project Coordinator)—were responsible for ensuring that the project was on schedule and being monitored, and reported to the Project Steering Committee and collaborating organisations and relevant stakeholders. The FFI Project Leader met with ANT, Durrell, RSPB and government partners many times by Skype and Zoom throughout the project period, and the Project Coordinator was based in Anguilla throughout. This allowed frequent collaborative reviews of project activities and outputs by FFI and our partners. We maintained and followed a detailed monthly work plan and financial plan, which were reviewed and updated at least once a quarter. Both FFI and ANT shared responsibility for keeping records of activities, outputs and the indicators in the project logframe. ANT included project indicators in their annual financial and performance reports to the Government of Anguilla.

The large body of data gathered on the status and distribution of all seven target species in Year 1 served as the baseline for monitoring and measuring the project impact on these endangered animals and plants across Anguilla. We used species- and site-specific indicators (Output 1) and biosecurity protocols (Output 2), developed in Year 1, to guide our work in Years 2 and 3 and to ensure that our methods follow best practice. All data collected through this project were inputted into a database managed in Anguilla by the project's Information Manager, Clarissa Lloyd. These included, for example, data from the routine checks of permanent bait stations used to detect and prevent rodent incursions on Dog Island and the Prickly Pear Cays, and detailed records of the iguanas translocated to, and seen on, Prickly Pear East. The ANT also collated and documented verbal and other feedback from the public to gauge any evidence of improved understanding, willingness and ability to conserve endangered species, such as individuals offering to be volunteers or helping to conserve the wildlife on their lands.

No external evaluations were conducted for this project.

### **7.2 Actions taken in response to annual report reviews**

FFI was pleased to receive very positive feedback on the annual reports and shared these with our partners. Reviews of both our Year 1 and Year 2 report gave the project a score of 1 ("The Outputs/Outcome are well on the way to completion (or completed)"). The whole team felt very encouraged by the many positive comments.

The only issues raised that demanded action were:

(Year 1 review) "*Please send change request for Activity 2.5 as soon as you can*". This instruction was in reference to the planned work to eradicate invasive alien mice from Sombrero Island, which was becoming increasingly difficult to accomplish in Year 2 due to the Covid-19 pandemic. We submitted a Change Request to the DI team in July 2020, requesting permission to defer the eradication to Year 3 (which was approved). Activity 2.5 was implemented successfully in Year 3.

(Year 2 review) *“The report claims an underspent of GBP465.73 and the project team would like to know if this unspent amount could be carried forward for Year 3. This needs to be discussed directly with the DI team”*. We contacted the DI team in July 2021 and this matter was resolved, with the underspend from Year 2 carried forward to Year 3.

## **8 Darwin Identity**

The Darwin Initiative was recognised on all materials produced through this project, including press releases, social media posts and presentations and was recognised as a distinct project being conducted by FFI and its partners.

Having linked this project to Darwin Initiative in all our public awareness activities, we believe that there was some understanding of the Darwin Initiative within Anguilla although the level of awareness and understanding has not been formally measured. The Darwin Initiative is certainly very well known to the Government of Anguilla and its agencies.

All project partners have Facebook pages and Instagram accounts, and both FFI and RSPB also have active Twitter accounts. Darwin Plus has been linked to Instagram and Facebook posts related to this project by using #DPLUS, #DarwinPlus and @defrauk.

## **9 Impact of COVID-19 on project delivery**

When this project was conceived, none of us foresaw the Covid-19 pandemic that emerged in the last quarter of Year 1. Fortunately, despite some of our project team members having fallen ill, they all recovered and we were able to deliver all our planned project activities before the end of the grant period.

Our team followed all rules and advice (e.g. wearing masks, social distancing, accepting vaccinations when offered, undergoing quarantine when required) to protect ourselves, our families and others. While on-water travel for most people (including fishers) was prohibited between March and June 2020 and limited thereafter, ANT staff and the FFI Project Leader were granted permission by the Government of Anguilla to continue to conduct necessary work on the offshore islands. This allowed most of our fieldwork to continue uninterrupted throughout Years 2 and 3. Our team even received approval to travel to Dominica to collect 10 Lesser Antillean iguanas (Activity 2.1), flying direct each way to avoid passing through other islands with higher infection rates.

The most significant activity to be affected was the operation to eradicate invasive mice from Sombrero Island (Activity 2.5) which was postponed from Year 2 to Year 3, with consent from Darwin in July 2020. While WMIL director, Elizabeth Bell, was initially scheduled to lead the eradication, due to New Zealand travel restrictions (where she is based), we secured the services of John Tayton and Toby Ross, both of whom were able to travel to Anguilla, to jointly lead the mouse eradication team on Sombrero. Ms Bell, however, was able to provide valuable technical support via zoom and email, and guided the eradication initiative remotely, thanks to her prior knowledge of the island and experience in leading mouse eradications. She also co-authored the eradication feasibility study, operational plan and eradication report.

Also, when FFI and ANT commissioned a new boat to be built in Anguilla in Year 1 (Activity 3.8), the builder experienced delays in procuring and installing the engines due to the global pandemic and resulting supply chain issues. The boat was finally completed and launched in November 2021 and has since been used to support project activities on the offshore islands.

In the latter part of Year 3, travel restrictions were gradually lifted but mask and social distancing mandates remained in place. This meant that local partners continued their public awareness-related activities using online platforms rather than face-to-face engagement.

The Covid-19 pandemic was devastating for many individuals and families; both lives and livelihoods were lost. Despite the difficulties and heartbreak, and perhaps because of all of the restrictions, we found local people were finding their way back to nature: they appreciated the time during lockdowns when they could go outside to swim in the ocean or go for a walk to escape the confines of indoor spaces. Real value was being placed on nature during this time and these



are feelings and connections that we will work to maintain as we slowly emerge from the pandemic.

After months of working from home, FFI and its partners recognised that there is value to hybrid approaches to work and that while we will always appreciate in-person meetings, events, and interactions, there is a place for virtual meetings and assistance can be provided remotely when local partners are equipped the necessary knowledge, skills, and tools. We, therefore/ expect to continue to apply this hybrid approach to future work, projects, and programmes with our local counterparts.

## 10 Finance and administration

### 10.1 Project expenditure

Project spend (indicative) since last annual report	2021/22 Grant (£)	2021/22 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs	████████	████████	██████	N/A - within the acceptable threshold limit
Consultancy costs	████████	████████	██████	N/A - within the acceptable threshold limit
Overhead Costs	████████	████████	██████	N/A - within the acceptable threshold limit
Travel and subsistence	████████	████████	██████	N/A - within the acceptable threshold limit
Operating Costs	████████	████████	██████	
Capital items	-	-	-	-
Others	████████	████████	██████	N/A - within the acceptable threshold limit
<b>TOTAL</b>	████████	████████		

████████ is the new 2021/2022 budget as it includes the ██████████ initially planned, plus the ██████████ carried forward from Year 2 to Year 3 (Change request sent on 02 July 2021 and accepted on 04 August 2021, see page 16).

Staff employed (Name and position)	Cost (£)
Olivier Raynaud - Project Leader	████████
Isabel Vique - Finance Administrator	████████
Dr. Louise Soanes - Project Coordinator	████████
Clarissa Lloyd - Information Manager	████████
Tashim Flemming - Project Field Staff	████████
Giovanni Hughes - Project Field Staff	████████
Lyndon John - Policy Adviser and UKOT Liaison	████████
<b>TOTAL</b>	████████

Consultancy – description and breakdown of costs	Other items – cost (£)
Videographer	████████
Videographer	████████
<b>TOTAL</b>	████████

Capital items – description	Capital items – cost (£)
N/A	N/A
<b>TOTAL</b>	

Other items – description	Other items – cost (£)
Mainland island feasibility study monitoring supplies	████████
Consumables (i.e. shipping and handling charges, plant consumables, office supplies, telephone charges and wildlife monitoring supplies)	████████
ArcView GIS Software	████████
<b>TOTAL</b>	████████

## 10.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Fauna & Flora International: John Ellerman Foundation	████████
Fauna & Flora International: Betty Liebert Trust	████████
Anguilla National Trust, through Government of Anguilla subvention	████████
Durrell Wildlife Conservation Trust	████████
Royal Society for the Protection of Birds	████████
<b>TOTAL</b>	████████

Source of funding for additional work after project lifetime	Total (£)
DPLUS158 - Piloting a new solution for invasive species in UKOTs	████████
<b>TOTAL</b>	████████

## 10.3 Value for Money

This project demonstrated excellent value for money. This project brought together a group of individuals and stakeholders including international conservation organisations (FFI, Durrell, RSPB), the ANT, the Government of Anguilla, the University of Roehampton and local communities, drawing on local and institutional knowledge and expertise. In addition to enhancing existing relationships (for example amongst FFI, Durrell, RSBP, WMIL and ANT), we have also built stronger partnerships with landowners, the private sector and schools. The project has also forged a strong relationship between the conservation community in Anguilla with their counterparts in Dominica, catalysed the formation of the regional Lesser Antillean iguana working group and explored additional ways to support endangered species conservation efforts at a

regional scale, including the sharing of difficult-to-access materials (e.g. DNAguard) and lessons learned.

With matched funding, establishing partnerships, and interlinkages with other Darwin Plus-funded projects, we were able to secure capital items (a vessel, a plant nursery) that will contribute to endangered species and biodiversity conservation on Anguilla long after the end of this project. There have already been multiplier effects and amplification of project success: methods and skills developed during this project (invasive species eradication, biodiversity monitoring, species reintroductions and translocations, management planning, communications and outreach, stakeholder engagement) are being applied to natural resources management and habitat restoration throughout Anguilla.

This project has also increased the profile of both FFI and ANT on Anguilla, with both agencies being recognised as leading environmental conservation agencies that are capable of raising funds to support natural resources management and delivering results that have a real impact while raising awareness about why natural heritage conservation matters.

This success of this project also allowed us to secure over [REDACTED] to continue to implement priority activities in the endangered species action plan. In May 2022, we learned that our joint Darwin Plus application with ANT and the Government of Anguilla to construct a mainland island at Fountain National Park (one of our priority interventions outlined within the action plan) was successful. Since then, ANT has been able to raise additional funds from the John Ellerman Foundation and a private donor to expand the boundaries of the park for the benefit of its biodiversity. In addition, our restoration work on Sombrero Island and Little Scrub will continue with ongoing support from the Prince of Wales's Charitable Fund. This support would not have been possible without the significant progress that has been made in endangered species conservation through this Darwin Plus project.

## **11 OPTIONAL: Outstanding achievements of your project during the (300-400 words maximum). This section may be used for publicity purposes**

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

One of the major achievements of this project has been the amendment of Anguilla's Biodiversity and Heritage Conservation Act which now protects all of Anguilla's known and assessed endangered reptiles and plants. Using data collected through this project and cross-referencing it with the IUCN Red List species status, project partners, as well as the Environment Unit-Department of Natural Resources, successfully lobbied the Government of Anguilla to make the necessary changes to the legislation in less than a year. The amendments were presented to the Anguilla House of Assembly with no questions or concerns raised by Members of the Opposition. Our efforts clearly show the value of sound science and an evidence-based approach to legislative change.

Working with natural resources managers and colleagues extended beyond Anguilla's borders: as part of this project, our team were fortunate enough to be able to collaborate with the Agence Territoriale de l'Environnement (ATE) in Saint Barth's to benefit from their expertise in designing artificial iguana nesting sites, as well as the Forestry and Wildlife Division in Dominica to facilitate the first regional translocation of an endangered reptile for reintroduction purposes. Through the generosity of the Government of Dominica, Anguilla's Lesser Antillean iguana population is now in an even better position to recover and expand. We were also pleased that ANT was able to assist our Dominican colleagues (both government and NGO staff) by sharing their knowledge of iguana husbandry and lending additional hands in their efforts to control a growing invasive green iguana population in Dominica. Fostering these types of relationships and exchanges between government agencies and local NGOs is exceedingly valuable as FFI's Caribbean Programme seeks to build regional capacity to conserve island biodiversity. This is work that local partners cannot do in isolation and ANT truly values the regional and cross-agency relationships that have been formed over the last few years.

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	Yes
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	No
If you are submitting photos for publicity purposes, <b>do these meet the outlined requirements (see section 11)?</b>	No
<b>Have you included means of verification?</b> You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
<b>Do you have hard copies of material you need to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	